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COMMITTEE ON THE PEACEFUL USES
OF OUTER SPACE
Scientific and Technical Subcommittee
Twenty-ninth session

DRAFT REPORT OF THE SCIENTIFIC AND TECHNICAL SUBCOMMITTEE ON THE WORK OF ITS TWENTY-NINTH SESSION

Addendum

VII. MATTERS RELATING TO LIFE SCIENCES, INCLUDING SPACE MEDICINE

1. In accordance with General Assembly resolution 46/45, the Subcommittee continued its consideration of this item. The Subcommittee heard a special presentation on the question by an expert from the United States, as mentioned in paragraph 16 of the present report. The Subcommittee took note of a working paper submitted by the Russian Federation (A/AC.105/C.1/L.182).

2. The Subcommittee noted with appreciation the study prepared at its request by the Secretariat on applications of biomedical technology resulting from space life-science research (A/AC.105/500).

3. The Subcommittee took note of the programmes of space life-science research in Canada, Germany, the Russian Federation and the United States. The Subcommittee noted that studies of human physiology under the microgravity conditions of space flight had led to important advances in medical knowledge in such areas as blood circulation, the vestibular apparatus, physiology, biomechanics and metabolism. It noted that important new information in these fields had been obtained through experiments on board the Mir space station, and during the Spacelab Life Sciences mission and the International Microgravity Laboratory mission. The Subcommittee also noted that products of space biotechnology, such as pharmaceuticals and diagnostic and therapeutic instruments, could contribute to improved health care on Earth.

4. The Subcommittee noted that applications of space technologies were demonstrating growing promise in medicine and public health. Satellite remote sensing was being used for the prediction of the spread of vector-borne diseases such as malaria and for the planning of more effective vector control

campaigns. Satellite communications were being used for telemedicine services to provide expert medical advice to distant areas, as illustrated by the Telemedicine Spacebridge linking medical centres in the United States and the Soviet Union. The Subcommittee noted the importance of space technology for these purposes and encouraged further research and exchange of information on those applications.

5. The Subcommittee noted that space studies in life sciences and medicine had important potential benefits for all countries and that efforts should be made to promote international cooperation to enable all countries to benefit from those advances. In this connection, the Subcommittee recalled that the General Assembly, in resolution 46/45, had considered it particularly important that all countries should have the opportunity to use the techniques resulting from medical studies in space.

6. The Subcommittee recommended that consideration of the item be continued at its next session.

VIII. PROGRESS IN NATIONAL AND INTERNATIONAL SPACE ACTIVITIES RELATED TO THE EARTH ENVIRONMENT, IN PARTICULAR PROGRESS IN THE GEOSPHERE-BIOSPHERE (GLOBAL CHANGE) PROGRAMME

IX. THE THEME FIXED FOR SPECIAL ATTENTION AT THE 1992 SESSION: "SPACE TECHNOLOGY AND THE PROTECTION OF THE EARTH'S ENVIRONMENT: DEVELOPMENT OF ENDOGENOUS CAPABILITIES, IN PARTICULAR IN THE DEVELOPING COUNTRIES AND IN THE CONTEXT OF INTERNATIONAL SPACE YEAR"

7. In accordance with General Assembly resolution 46/45, the Subcommittee continued its consideration of the item concerning progress in national and international space activities related to the Earth environment, in particular progress in the International Geosphere-Biosphere (Global Change) Programme.

8. In accordance with General Assembly resolution 46/45, the Subcommittee paid special attention to the theme "space technology and the protection of the Earth's environment: development of endogenous capabilities, in particular in the developing countries and in the context of international space year". The Subcommittee noted with satisfaction that, at its invitation and as part of the special session for International Space Year, COSPAR and IAF had organized a symposium on the theme on 24 February 1991. The Subcommittee expressed appreciation to COSPAR and IAF for the very instructive symposium.

9. The Subcommittee also noted the contribution of the Outer Space Affairs Division to the preparations for the United Nations Conference on Environment and Development.

10. The Subcommittee noted the progress being made through international cooperation in the International Geosphere-Biosphere Programme, with the participation of many countries. It noted that such a joint international

effort was of fundamental importance for examining the future habitability of the planet and for managing the common natural resources of the Earth. The Subcommittee took particular note of the need to involve as many nations as possible in the scientific activities of the Programme, both in developed and in developing countries.

11. The Subcommittee took note of the important contributions of satellite remote sensing for monitoring, preventing and reversing land degradation, for planning the sustainable development of rural areas, for water conservation, for monitoring crop conditions and for predicting and assessing drought. It noted that the recent launches of the European Remote Sensing (ERS-1) satellite, the Japanese Earth Resources Satellite (JERS-1) and the Almaz satellite would provide valuable microwave data to complement the multispectral data from Landsat, SPOT, the Indian Remote Sensing (IRS) satellites and the Marine Observations Satellites (MOS).

12. The Subcommittee noted the important contribution of meteorological and atmospheric research satellites for studying global climate change, including the greenhouse effect and the degradation of the ozone layer. The recent launches of the Upper Atmosphere Research Satellite and the Meteor satellite carrying the Total Ozone Mapping System provide important new tools for this purpose.

13. The Subcommittee noted the need for further space research relating to climate change, sea-level change, vegetation cover, erosion, flood and earthquake prediction and relief, and other factors related to the Earth environment. The Subcommittee recognized the important contribution that satellite remote sensing and meteorology could make to the study of those dynamic environmental phenomena.

14. The Subcommittee took note of activities being planned for the study of the environment from space, including the Mission to Planet Earth programme. It noted, in particular, plans for the Earth Observing System, the Priroda ecological module and the TOPEX/Poseidon oceanographic satellite.

15. The Subcommittee noted the potential benefits of the use of space technology for monitoring the tectonic activity of the Earth for earthquake prediction. It noted the importance of further research in that area.

16. The Subcommittee noted the importance of international cooperation in the various existing and planned satellite systems for environmental monitoring. It recommended that other States consider participating in such cooperative activities.

17. The Subcommittee recommended that consideration of the item be continued at its next session.

X. MATTERS RELATING TO PLANETARY EXPLORATION

XI. MATTERS RELATING TO ASTRONOMY

18. In accordance with General Assembly resolution 46/45, the Subcommittee continued its consideration of these items. The Subcommittee heard special presentations on the items by experts from the United States, as mentioned in paragraph 16 of the present report.

19. The Subcommittee noted that three planetary exploration missions were currently under way. The Magellan spacecraft was in orbit around Venus and was conducting a systematic radar mapping programme of that planet. The Galileo spacecraft was on a complex trajectory to Jupiter and had recently made the first close observations of an asteroid. The Ulysses spacecraft had successfully made a swing-by manoeuvre of Jupiter on its long trajectory to observe the polar regions of the Sun. The Subcommittee also noted the plans for future spacecraft to conduct comprehensive investigations of Mars and Saturn and its moons. The Subcommittee noted the high degree of international cooperation in all of those investigations and stressed the need to further enhance international cooperation in this field, to enable all countries to benefit from and participate in those activities.

20. The Subcommittee noted that the use of spacecraft for making astronomical observations from above the atmosphere had greatly advanced knowledge of the universe by allowing observations in all regions of the electromagnetic spectrum. It noted that with the Hubble Space Telescope, the Rosat X-ray observatory, the Gamma and Granat astrophysical observatories, the Compton Gamma Ray Observatory and the Hipparcos spacecraft, astronomers had powerful new tools for their investigations of the universe. The planned launches of the Lyman Far Ultraviolet Spectroscopic Explorer (FUSE), the Radioastron satellite, the Spektr-Roentgen-Gamma observatory, the Advanced X-ray Astrophysical Facility, the Space Infra-Red Telescope Facility, the Infrared Space Observatory and the Extreme Ultraviolet Explorer would open up further realms of the universe to detailed observation. The Subcommittee noted with satisfaction that all of those projects were open to broad international cooperation.

21. The Subcommittee recommended that consideration of the items be continued at its next session.